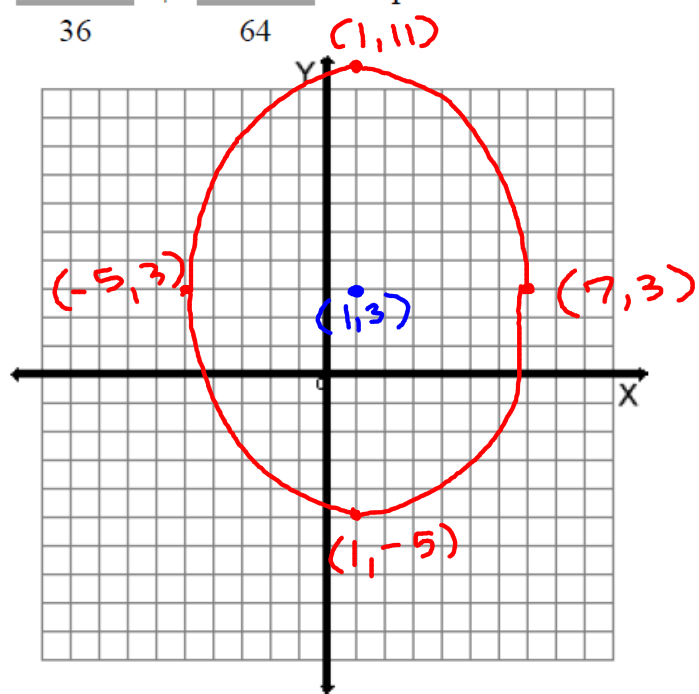
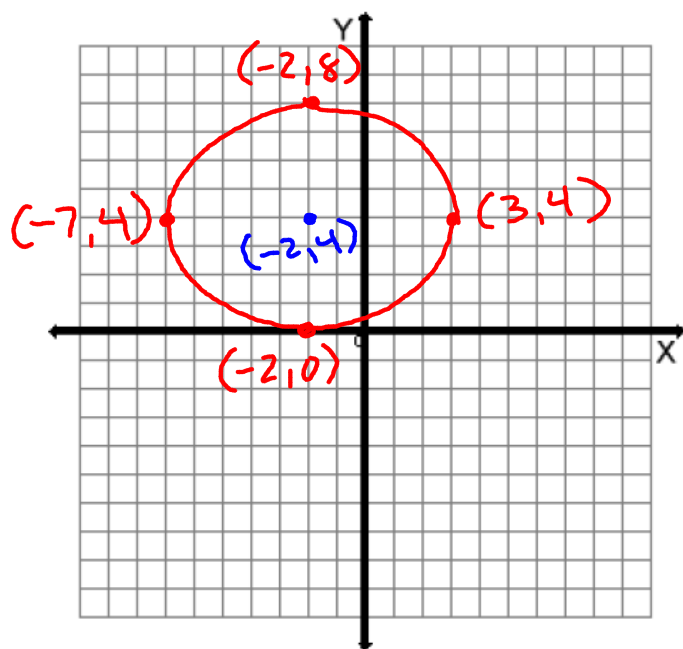


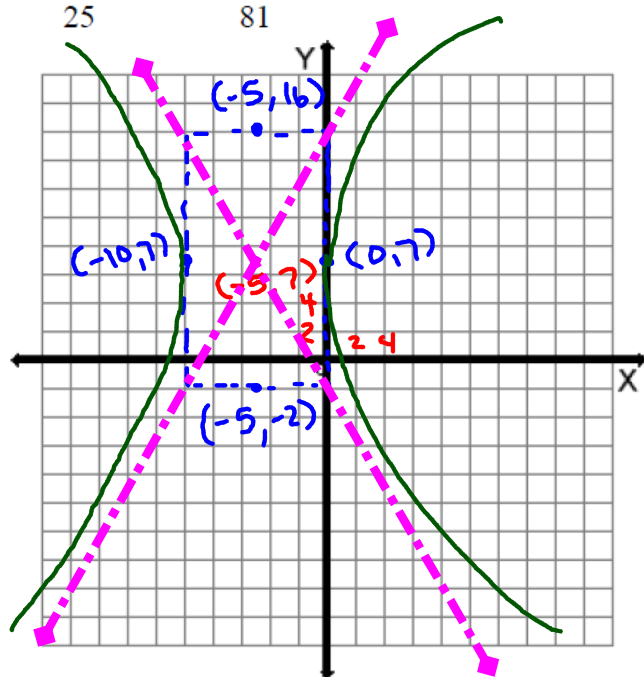
1) $\frac{(x - 1)^2}{36} + \frac{(y - 3)^2}{64} = 1$



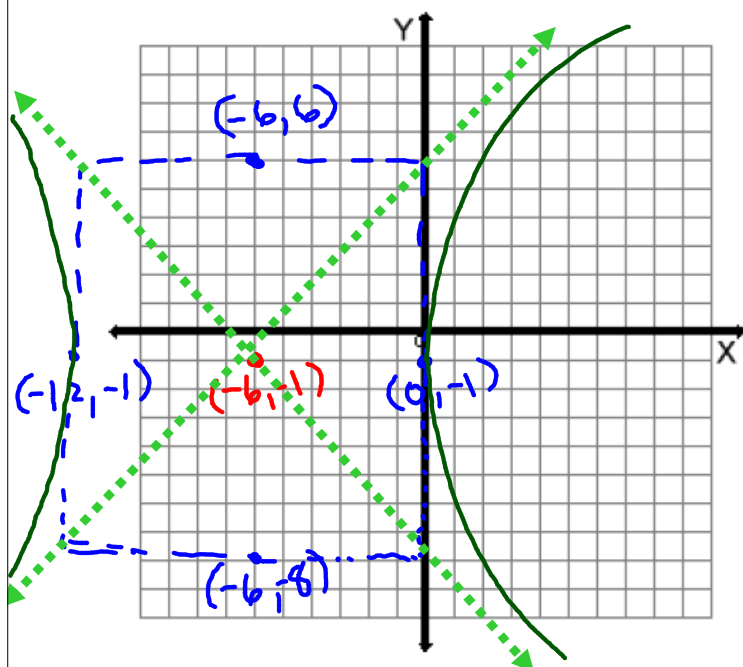
2) $\frac{(x + 2)^2}{25} + \frac{(y - 4)^2}{16} = 1$



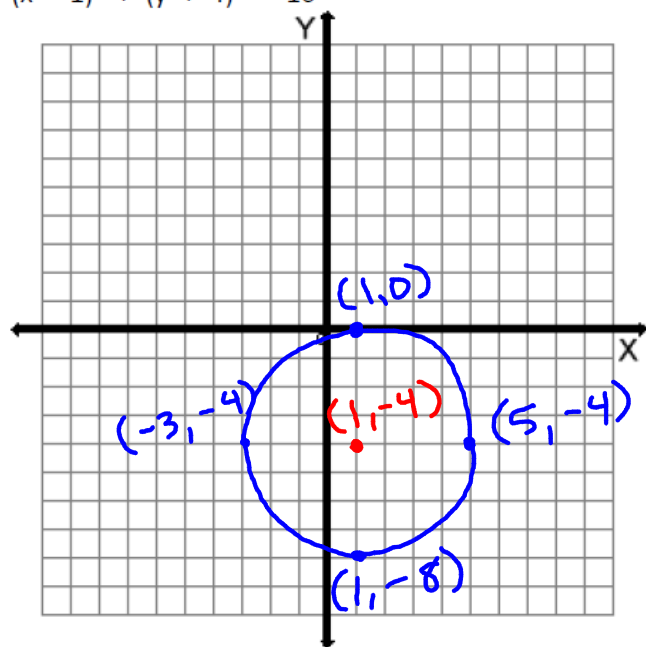
3) $\frac{(x + 5)^2}{25} - \frac{(y - 7)^2}{81} = 1$



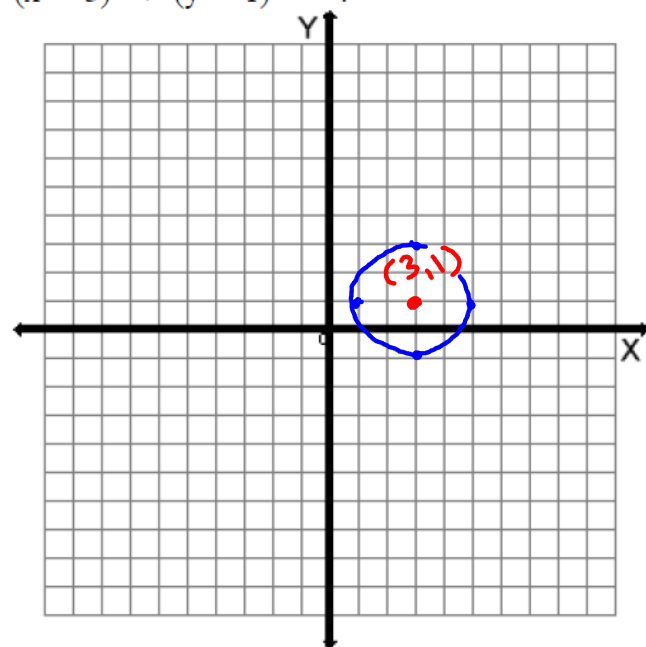
4) $\frac{(x + 6)^2}{36} - \frac{(y + 1)^2}{49} = 1$



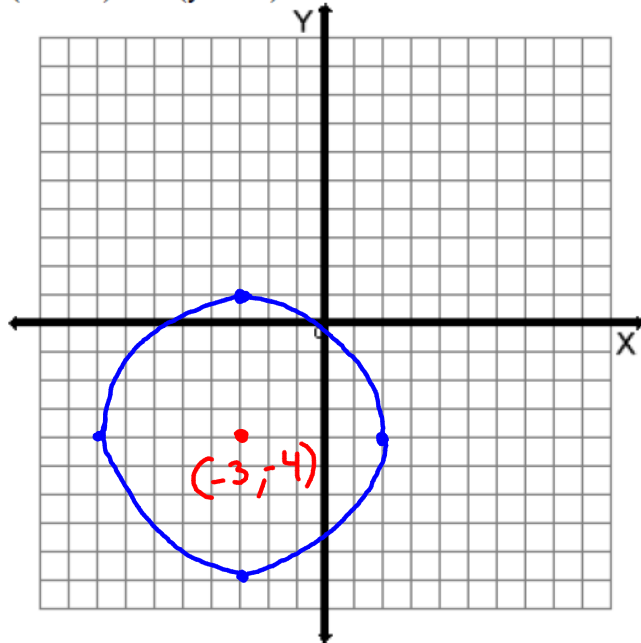
5) $(x - 1)^2 + (y + 4)^2 = 16$



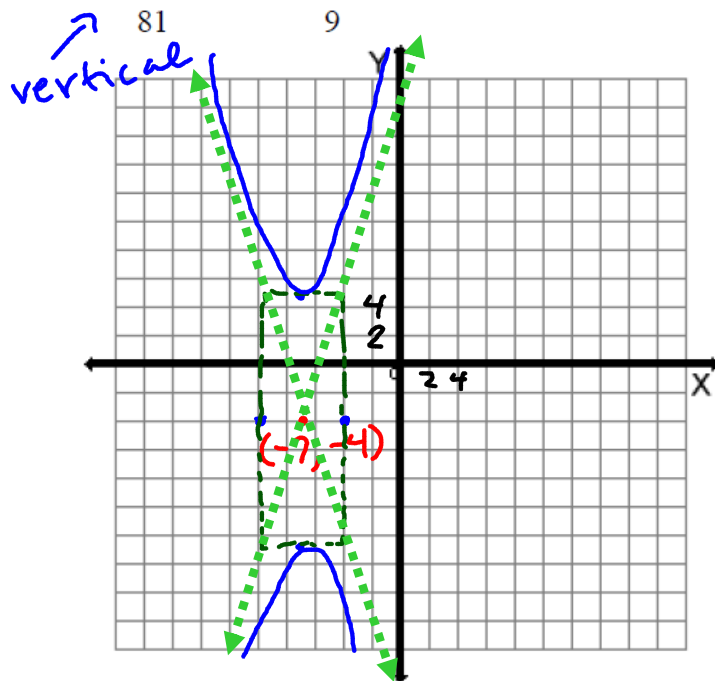
6) $(x - 3)^2 + (y - 1)^2 = 4$



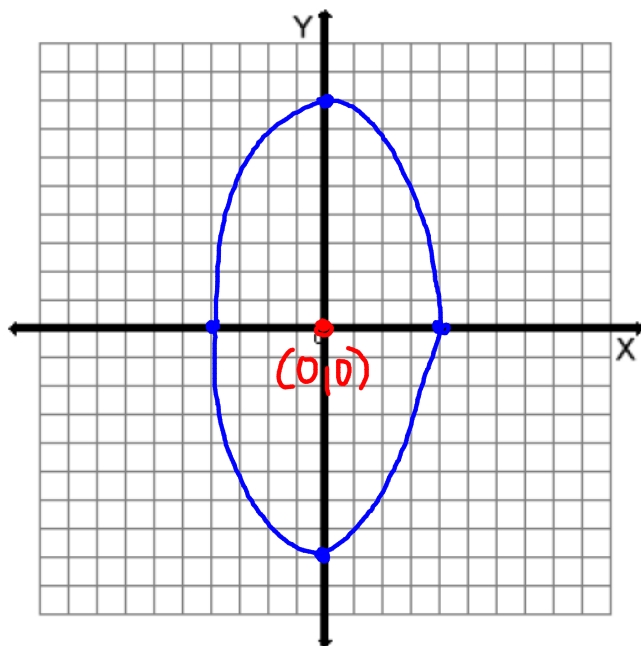
7) $(x + 3)^2 + (y + 4)^2 = 25$



8) $\frac{(y + 7)^2}{81} - \frac{(x + 4)^2}{9} = 1$



9) $\frac{x^2}{16} + \frac{y^2}{64} = 1$



10) $\log_9 x = \frac{3}{2}$

~~$9 \log_9 x = 9^{\frac{3}{2}}$~~
 $x = 27$

11)

$$\log_{16} 4 - \log_4 (x + 953) = \frac{-9}{2}$$

$$5 \quad \frac{\log 4}{\log 16} - \frac{\log (x + 953)}{\log 4} = \frac{-9}{2} - 4.5$$

$$\log 4 - \frac{\log (x + 953)}{\log 4} = -5 \log 4$$

$$\cancel{10} \log (x + 953) = \cancel{10} \log 4^5$$

$$x + 953 = 1024$$

$$x = 71$$

12)

$$4^{6x-9} = \frac{1}{64}$$

$$\cancel{\log_4 4^{6x-9}} = \log_4 \frac{1}{64}$$

$$6x-9 = \frac{\log \frac{1}{64}}{\log 4} - 3$$

$$6x-9 = -3$$

$$x = 1$$

13)

$$3^{x-2} = \frac{1}{243}$$

$$\cancel{\log_3 3^{x-2}} = \log_3 \frac{1}{243}$$

$$x-2 = -5$$

$$x = -3$$

14) $6^x = 140$

$$\cancel{\log_6 6^x} = \log_6 140$$

$$x \approx 2.758$$

15) $23^x = 6481$

$$\log_{23} 23^x = \log_{23} 6481$$

$$x = \log_{23} 6481$$

$$x \approx 2.799$$

16)

$$\log_4 64 + \log_{27} 9 + \log_{(1/2)} \left[\frac{1}{16} \right] - \log_4 (1017 + x) = \frac{8}{3}$$

$$\frac{\log 64}{\log 4} + \frac{\log 9}{\log 27} + \frac{\log \frac{1}{16}}{\log \frac{1}{2}} - \frac{\log (1017+x)}{\log 4} = \frac{8}{3}$$

$$3 + \frac{2}{3} + 4$$

$$\frac{-\log_4 (1017+x)}{\log 4} = -5 - \log_4$$

$$\log (1017+x) = \log 4^5$$

$$1017+x = 1024$$

$$x = 7$$

17) $\log_8 \left[\frac{1}{64} \right] - \log_3 81 + \log_5 (x+49) = -3$

$$\frac{\log \frac{1}{64}}{\log 8} - \frac{\log 81}{\log 3} + \frac{\log (x+49)}{\log 5} = -3$$

$$\underbrace{-2 - 4}_{-6 + 6} + \frac{\log (x+49)}{\log 5} = \underbrace{-3}_{+6}$$

$$\frac{\log (x+49)}{\log 5} = 3$$

$$\log (x+49) = \log 5^3$$

$$x+49 = 125$$

$$x = 76$$

18) $\log_{(1/3)} 81 = x$

$$x = -4$$

19) $\log_{(1/2)} 16 + \log_{(1/3)} 9 = x$

$$\frac{\log 16}{\log \frac{1}{2}} + \frac{\log 9}{\log \frac{1}{3}} = x$$

$$-4 + -2 = x$$

$$-6 = x$$

20) $\log_5 x + \log_{(1/3)} 9 + \log_9 81 = -4$

$$\frac{\log x}{\log 5} + \overset{-2}{\left(\frac{\log 9}{\log \frac{1}{3}} \right)} + \overset{2}{\left(\frac{\log 81}{\log 9} \right)} = -4$$

$$\log x = \log 5^{-4}$$

$$x = 5^{-4}$$

$$x = \frac{1}{5^4} = \frac{1}{625} \approx 0.0016$$